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M U D P I E no. 10

Museum and University Data, Program and Information Exchange

SECOND CRAM-COURSE IN TIME-SHARED COMPUTER PROGRAMMING

Once again I have been overwhelmed with requests (one) for instruction in programming the time-shared computer using the BASIC language. In the hopes that there might be a few others equally as interested as the Australian who has already applied, since I would rather not spend that much time on only one student, this announcement is made. The course will be given on July 3-4, in the National Museum of Natural History, Washington, D. C. The first day, July 3, will be spent almost entirely on learning the BASIC language and the techniques of using it as well as how to use the teletype machine, and should be enough by itself to provide background sufficient for independent use of time-shared computers. For the hardy soul who doesn't object too much to giving up part of the holiday, July 4 will be devoted to independent preparation by the student of programs which can then be tested against the computer. We will plan to stick with it until all the students are satisfied with what they have achieved, but I would not expect this to be much later than noon on the 4th. As was the case last year, this course will be aimed exclusively at the complete neophyte in computer work, and individuals with previous experience in computer programming or with time-shared consoles would probably find it a bore--but don't let that stop you if you want to come.

Anyone interested should contact James A. Peters, Division of Reptiles and Amphibians, National Museum of Natural History, Washington, D. C. 20560 sufficiently soon so we can know how many people to expect.

REQUEST FOR ASSISTANCE IN COMPUTERIZATION OF ECOLOGICAL RESEARCH DATA

Frederick R. Gehlbach, Department of Biology, Baylor University, Waco, Texas, 76703, has written to MUDPIE asking for assistance. Baylor University is in the process of setting up a natural history research area adjacent to the campus, and they are interested in computerization of the data accumulated there from the beginning. He is interested in learning about programs for storage, retrieval, and manipulation of ecological research data from natural areas, and would appreciate correspondence from any individual or institution that has developed methods for handling such data. Please write directly to him, but, if you have a flourishing set of programs, send MUDPIE a summary for the use of others!

SMITHSONIAN
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THE USE OF COMPUTERS FOR THE PRODUCTION OF CHECK LISTS

The basic requirements in producing a check list of the biota from a particular region are a knowledge of the species found there; a comprehensive literature reference list for that area, and a list of the species concerned. The onerous task is then compiling the numerous combinations of cross references for each species. I have developed a flexible and easily updated method of simplifying this job which is at present being used for the fish fauna of the Capricorn Group, Great Barrier Reef. All species names are stored on tape in taxonomic order, each species having a numerical identification number. Likewise all references are stored on tape in alphabetic order; also with a numerical identification number. For the production of the check list, a card input listing species identification number, reference identification number and pagination (for that species for that reference) are all that are needed. The computer then prints out the species listing in family groups, in taxonomic order. Each species is followed by the primary reference and one, two, or any number of references as desired.

The advantages of this system are threefold:

A. The taxonomic order can be readily changed or updated - a new listing takes only a matter of minutes.

B. The reference listing, once put onto tape in the correct form, will never need rechecking. Furthermore, the printout of references in the check list can be specified as Author and Date only, or may include the name of the publication and/or the title of the article.

C. A complete alphabetic listing is also produced but lists only those references actually used in the check list, thus removing the problem of checking for 'uncited references'.

These programs have been written in FORTRAN IV and are currently running on the I.B.M. 1460 at Macquarie University, Sydney.

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A NON-COMPUTERIZED DATA RETRIEVAL SYSTEM

A technique for retrieving large amounts of data consisting of an overlay retrieval system called the "Polyclave" has been worked out by James A. Duke.

He has used this technique for the analysis of ecological data on fish species found in the vicinity of the Panama Canal. The technique is very reminiscent of the "Termatrex" system now in use for retrieval of catalogue data in several museums (i.e., the Mammal Division of the American Museum of Natural History), but it has the advantage that it can be reproduced and distributed as part of a published study. Duke has done this, in a work entitled "Darien Fish Polyclave," issued March 12, 1970, by the Battelle Memorial Institute, Columbus Laboratories, 505 King Avenue, Columbus, Ohio, 43201. The work includes two basic tables with four transparent overlays attached to permit the user to see the technique, and then a large series of additional tables are presented with the suggestion that the reader utilize a photocopy machine to make up a series of transparencies for himself.

"COMPUTERS IN R AND D"

The magazine "Research/Development" devoted a large part of the April, 1970 issue to a series of articles on some of the problems faced by those thinking about computer use. The titles are as follows:

Instrumentation in a Time-shared Environment (20-26).

Dedicated or Time-share? (27-31).

Analog, Digital, or Hybrid? (32-36).

Should You Use a Consultant? (38-40).

Deducing Molecular Structure (75-78).

RECENT LITERATURE

Alpert, D. and D. L. Bitzer. Advances in Computer-based Education. Science, vol. 167, 1970, pp. 1582-1590.

Bridges, Kent. Automatic indexing of personal bibliographies. BioScience, vol. 20, 1970, pp. 94-97.

Cameron, D. R. and J. A. Toogood. Computer mapping of Alberta soil test data. Canadian Journal of Soil Science, vol. 50, 1970, pp. 1-7.

Crovello, T. J. and R. D. MacDonald. Index of EDP-IR projects in systematics. Taxon, vol. 19, 1970, pp. 63-79.

Daly, Diana. How to choose a time-sharing service. Computer Decisions, March, 1970, pp. 44-48. For the group still considering taking out a time-share contract, this little article is full of useful information.

Dayhoff, M. O. Computer analysis of protein evolution. Scientific American, vol. 221, no. 1, July 1969, pp. 86-95.

Farris, James S. Methods for Computing Wagner Trees. Systematic Zoology, vol. 19, 1970, pp. 83-92.

Holloway, J. D. A numerical investigation of the biogeography of the butterfly fauna of India, and its relation to continental drift. Biological Journal of the Linnaean Society of London, vol. 1, 1969, pp. 373-385.

Rohlf, F. J. Adaptive Hierarchical Clustering Schemes. Systematic Zoology, vol. 19, 1970, pp. 58-82.

St. Clair, Paul R. Decision tables clear the way for sharp selection. Computer Decisions, Feb., 1970, pp. 14-18.

Waller, Thomas R. Two FORTRAN II Programs for the univariate and bivariate analysis of morphometric data. Bull. U.S.N.M., no. 285, 1968, pp. 1-55.

The following are recent issues of "Computer Contributions," State Geological Survey, University of Kansas, Lawrence, Kansas; Daniel F. Merriam, Editor.

Ondrick, C. W. and G. S. Srivastava. Corfan-Fortran IV computer program for correlation, factor analysis (R- and Q-mode) and Varimax rotation. No. 42.

Preston, D. A. Fortran IV program for ample normality tests. No. 41.

Wray, William B. Fortran IV CDC 6400 computer program for constructing isometric diagrams. No. 44.

Parks, James M. Fortran IV program for Q-mode cluster analysis on distance function with printed dendrogram. No. 46.

Reyment, Richard and H.-A. Ramden. Fortran IV program for canonical variates analysis for the CDC 3600 computer. No. 47.

McCammon, R. B. and G. Wenninger. The Dendrograph. No. 48.

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